AUTHOR INDEX, VOLUME 5

Ajroldi, G., Garbuglio, C., and Pezzin, G.: Relaxation spectra and polymer melts from relaxation and steady-state flow data, 289

Akovali, G.: Viscoelastic properties of polystyrene, 875

Andrews, E. H., Bennett, M. W., and Markham, A.: Microstructure of bulk polymers as revealed in ultrathin sections, 1235

Arisawa, K.: see Hayakawa, R.

Asada, T.: see Onogi, S.

Baccaredda, M., Butta, E., Frosini, V., and de Petris, S.: Mechanical secondary relaxation effects in polysulfone, 1296

Barrall, E. M., II, and Gallegos, E. J.: Depolarized light and differential thermal analyses of some polyolefin transitions, 113

Barrie, J. A., and Machin, D.: Concentration dependence of the time lag for diffusion, 1300

Bauwens, J.-C.: Déformation plastique des hauts polymères vitreux soumis à un système de contraintes quelconque, 1145

Baysal, B. M., and Stockmayer, W. H.: Effect of polydispersity on liquid–liquid phase equilibrium, 315

Bennett, M. W.: see Andrews, E. H.

Berry, G. C., Nomura, H., and Mayhan, K. G.: Dilute solution studies on a polycarbonate in good and poor solvents, 1

Bettelheim, F. A.: Low-angle light scattering of ionotropic gels, 1043

Bianchi, U., Cuniberti, C., Pedemonte, E., and Rossi, C.: Energy contents of amorphous polystyrene with different thermal histories, 743

Blundell, D. J., Keller, A., and Connor, T. M.: Investigation of the fold-surface problem in polyethylene single crystals with the nitric acid oxidation technique, 991

Bohdanecký, M., Šolc, K., Kratochvíl, P., Kolínský, M., Ryska, M., and Lím, D.: Structure and solution properties of radical-initiated poly(vinyl chloride). II. Correlation of solution properties, 343

——: see Quadrat, O.

Böhm, G. G.: Diffusion theory of the post-irradiation oxidation of polyethylene, 639

Bondi, A.: On the predictability of the high-frequency elastic modulus of semicrystalline polymers as function of crystallinity, 83

Brown, N.: see Rabinowitz, S.

Busse, W. F.: Mechanical structures in polymer melts. I. Measurements of melt strength and elasticity, 1249

——: Mechanical structures in polymer melts. II. Roles of entanglements in viscosity and elastic turbulence, 1261

Butta, E.: see Baccaredda, M.

Calderon, N., and Morris, M. C.: Melting temperature of *trans*-polyoctenamer, 1283

Carpenter, D. K.: Light scattering study of the molecular weight distribution of polypropylene (*erratum*), 1331

Chiang, R., and Stauffer, J. C.: Association of polyacrylonitrile prepared by low-temperature, solution polymerization with an organometallic catalyst, 101

Connor, T. M.: see Blundell, D. J.

Cornell, S. W.: see Koenig, J. L.

Costantino, L., Crescenzi, V., Quadrifoglio, F., and Vitagliano, V.: Influence of stereoregularity on binding of counterions by poly(methacrylic acid), 771

Cotten, G. R.: Carbon black reinforcement in preswollen rubbers. Part II, 1177

Coyne, B. J.: On the use of a random parameter in the theory of depolymerization of long-chain molecules, 633

Crescenzi, V.: see Costantino, L.

Cuniberti, C.: see Bianchi, U.

Dammont, F. R., and Kwei, T. K.: Dynamic mechanical properties of aromatic, aliphatic, and partially fluorinated epoxy resins, 761

Dondos, A., and Patterson, D.: Intrinsic viscosity of homopolymers and graft copolymers in solvent mixtures, 230
Doppert, H. L.: Adsorption of iodine from aqueous solutions by samples of tire yarn from regenerated cellulose, 263
Ekiner, O.: see Frensdorff, H. K.
Emerson, F. A.: see Lee, C. L.
Evrard, G., and Job, C.: Caractérisation des polymères réticulés sous tension, 1029
Ferry, J. D.: see Ninomiya, K.
Fischer, E., and Henderson, J. F.: Study of crystallization kinetics of *trans*-1,4-polyisoprene, 377
Flory, P. J., and Williams, A. D.: Configurational statistics of polyamide chains, 399
——: see Williams, A. D.
von Frankenberg, C. A.: see Stewart, C. W.
——: see VerStrate, G.
Frensdorff, H. K., and Ekiner, O.: Statistics of substitution polymers, 1157
Frosini, V.: see Baccaredda, M.
Fujisawa, T.: see Onogi, S.
Fukui, Y.: see Onogi, S.
Gallegos, E. J.: see Barrall, E. M., II
Garbuglio, C.: see Ajroldi, G.
Gent, A. N., and Hirakawa, H.: Effect of temperature on the ozone cracking of butyl rubbers, 157
Gent, A. N., and Vickroy, V. V., Jr.: Elastic behavior, birefringence, and swelling of amorphous polyethylene networks, 47
Gill, S. J.: see Jackson, J. F.
Glauz, R. D.: Transient analysis of a vibrating reed: Error analysis, 425
Graessley, W. W., and Mittelhauser, H. M.: Intrinsic viscosity of polydisperse branched polymers, 431
Guliana, R.: see Wild, L.
Gurnee, E. F.: Birefringence dispersion in oriented polystyrene, 817
——: Measurement of concentration gradients in swelling crosslinked polymer beads, 799
Haas, H. C., Moreau, R. D., and Schuler, N. W.: Synthetic thermally reversible gel system. II, 915
Hall, I. H.: Viscoelasticity of textile fibers at finite strains, 1119
Hamada, T.: see Kotera, A.
Hardy, G. F.: Solubility and diffusion of water in acetal polymers, 671
Hayakawa, R., Nishi, T., Arisawa, K., and Wada, Y.: Dielectric relaxation in the paracrystalline phase in polyacrylonitrile, 165
van der Heijde, H. B.: A concise polymer crystal genealogy, 225
Hellman, M. Y.: see Salovey, R.
Henderson, J. F.: see Fischer, E.
Hermann, G.: see Weill, G.
Hirakawa, H.: see Gent, A. N.
Hiratsuka, S.: see Nishijima, Y.
——: see Teramoto, A.
Hock, C. W.: Transmission electron microscopy of polypropylene lamellae delineated by staining, 471
Huggins, M. L.: Theory of polymer fractionation efficiency, 1221
Iso, N.: see Kotera, A.
Jackson, J. F., and Gill, S. J.: Elastic properties of crosslinked poly(vinyl alcohol) gels: Network topology, 663
——, and Gill, S. J.: Strain birefringence of poly(vinyl alcohol) gels, 795
Janeschitz-Kriegl, H.: see Wales, J. L.
Job, C.: see Evrard, G.
Joshi, R. M., Zwolinski, B. J., O'Reilly, J. M., and Karasz, F. E.: Configurational enthalpy of polystyrene, 705
Juers, D. H., Swenson, H. A., and Kurath, S. F.: Configuration and hydrodynamic properties of fully acetylated salep glucomannan, 361
Kagiyama, M.: see Nomura, S.
Karasz, F. E.: see Joshi, R. M.
Kashiwabara, H.: see Nara, S.
Kasuya, T.: see Minoura, Y.
Kataoka, T., and Ueda, S.: Viscosity of polydimethylsiloxane–pentamer systems, 973
Kawai, H.: see Nomura, S.
Kawamura, S.: see Minoura, Y.
Keller, A.: see Blundell, D. J.
Kimura, I.: see Nomura, S.
Kimura, Y.: see Onogi, S.
Kleinman, L.: see Morrow, D. R.
Koenig, J. L., Cornell, S. W., and Witenhafer, D. E.: Infrared technique for the measurement of structural changes during the orientation process in polymers, 301
Kojima, M.: Morphology of polypropylene crystals. I. Dilute solution-grown lamellar crystals, 597

——: Morphology of polypropylene crystals. II. Twinning of lamellar crystals, 615
Kolínský, M.: see Bohdanecký, M.
Kotera, A., Iso, N., Senuma, A., and Hamada, T.: Ultracentrifugal equilibrium measurement of high polymer solutions at elevated temperatures, 277
Kratochvíl, P.: see Bohdanecký, M.
Kurath, S. F.: see Juers, D. H.
Kwei, T. K.: see Dammont, F. R.
Lapcik, J.: see Vavra, J.
Lee, C. L., and Emerson, F. A.: Molecular dimensions of polydipropylsiloxamer, 829
Lee, L.-H.: Adhesion of high polymers. I. Influence of diffusion, adsorption, and physical state on polymer adhesion, 751
——: Adhesion of high polymers. II. Wettability of elastomers, 1103
Lím, D.: see Bohdanecký, M.
Liu, K.-J.: NMR studies of polymer solutions. I. Poly(methyl methacrylates), 1199
——: NMR studies of polymer solutions. II. Polyethylene, 1209
——: Selective polymeric effects on solvent NMR relaxations, 697
McMahon, P. E.: Wideline NMR studies of polyacrylonitrile, 271
Machin, D.: see Barrie, J. A.
Magill, J. H.: Crystallization of poly(tetramethyl-*p*-silphenylene) siloxane (TMPS) polymers. Part II, 89
Majerus, J. N.: Experimental anomalies and the conformational theory of polymers, 455
Makino, S., and Sugai, S.: Polyelectrolyte behavior and conformation of poly-L-methionine *S*-methylsulfonium salts in aqueous solution, 1013
Makishima, K.: see Miyasaka, K.
Mandelkern, L.: see Okada, T.
Markham, A.: see Andrews, E. H.
Masuda, T.: see Onogi, S.
Matsuzaki, K., and Sugimoto, T.: NMR spectra of poly-2-vinylpyridine, 1320
Mayhan, K. G.: see Berry, G. C.
Michaeli, I.: see Shatkay, A.
Minoura, Y., Kasuya, T., Kawamura, S., and Nakano, A.: Degradation of poly(ethylene oxide) by high-speed stirring, 125
Mittelhauser, H. M.: see Graessley, W. W.
Miyanaga, N.: see Onogi, S.
Miyasaka, K., and Makishima, K.: Disorientation of crystallites in highly stretched polyethylene, 535
Moore, R. S.: Models of spherulite deformation taking into account changes in volume, 711
Moreau, R. D.: see Haas, H. C.
Morris, M. C.: see Calderon, N.
Morrow, D. R., Richardson, G. C., Kleinman, L., and Woodward, A. E.: Annealing and melting of poly-4-methylpentene-1 single crystals, 493
Munk, P.: Streaming birefringence. VII. Influence of the intermolecular hydrodynamic interaction on the viscosity and streaming birefringence of polymer solutions, 685
Nakano, A.: see Minoura, Y.
Nara, S., Kashiwabara, H., and Sohma, J.: Configurations of the free radicals in irradiated polypropylene and the relation of their decay reactions to the molecular motion, 929
Ninomiya, K., and Ferry, J. D.: Dynamic mechanical properties of a gel of cellulose nitrate in diethyl phthalate: Reduced variable analysis in terms of amorphous and crystalline phases, 195
Nishi, T.: see Hayakawa, R.
Nishijima, Y., Teramoto, A., Yamamoto, M., and Hiratsuka, S.: Studies of micro-Brownian motion of a polymer chain by the fluorescence polarization method. I. Fluorescent conjugates of polyacrylamide, 23
Nishijima, Y.: see Teramoto, A.
Nomura, H.: see Berry, G. C.
Nomura, S., Kawai, H., Kimura, I., and Kagiyama, M.: General description of optical dichroic orientation factors for relating optical anisotropy of bulk polymer to orientation of structural units, 479
Odani, H.: Diffusion in glassy polymers. IV. Diffusion of methyl ethyl ketone in atactic polystyrene above the critical concentration, 1189
Okada, T., and Mandelkern, L.: Effect of morphology and degree of crystallinity on the infrared absorption spectra of linear polyethylene, 239

Okajima, S., and Takeuchi, A.: Anisotropy of the mechanical loss tangent of draw polyacrylonitrile film, 1317
Onogi, S., Asada, T., Fukui, Y., and Fujisawa, T.: Time–temperature superposition of time-dependent birefringence for low-density polyethylene, 1067
——: Masuda, T., Miyanaga, N., and Kimura, Y.: Dependence of viscosity of concentrated polymer solutions upon molecular weight and concentration, 899
O'Reilly, J. M.: see Joshi, R. M.
Osterhoudt, H. W., and Ray, L. N., Jr.: Gel permeation chromatography: On the shape of the calibration plot and molecular size separability, 569
Patterson, D.: see Dondos, A.
Pedemonte, E.: see Bianchi, U.
Peterlin, A.: Frequency dependence of intrinsic viscosity of macromolecules with finite internal viscosity, 179
——, Williams, J. L., and Stannett, V.: Sorption of organic vapors into drawn and undrawn polyethylene, 957
Petree, M. C.: see Warfield, R. W.
de Petris, S.: see Baccaredda, M.
Pezzin, G.: see Ajroldi, G.
Polowiński, S.: Investigation of the viscosity of solutions of graft copolymers, 891
Pound, G. M.: see Schultz, J. M.
Puett, D.: Network behavior of polyurethane elastomers, 839
Quadrat, O., and Bohdanecký, M.: Negative thixotropy of poly(methyl methacrylate) solutions in Θ-solvents, 1309
Quadrifoglio, F.: see Costantino, L.
Rabinowitz, S., and Brown, N.: Microstrain investigation of polyethylene, 143
Ray, L. N., Jr.: see Osterhoudt, H. W.
Richardson, G. C.: see Morrow, D. R.
Robinson, W. H.: see Schultz, J. M.
Rohn, C. L.: Calibration of gel permeation chromatographic columns for measuring the molecular size of poly(vinyl chloride) in tetrahydrofuran, 547
Rossi, C.: see Bianchi, U.
Rubin, I. D.: On polymorphism in polypentene-1, 1323
Ryska, M.: see Bohdanecký, M.
Sabadoš, J.: see Vavra, J.
Salovey, R., and Hellman, M. Y.: Gel permeation chromatography of branched polyethylene, 333
Scholte, Th. G.: Unperturbed dimensions of copolymer molecules, 461
Schreiber, H. P., and Waldman, M. H.: Isothermal calorimeter for studies of polymer solution processes, 555
Schuler, N. W.: see Haas, H. C.
Schultz, J. M., Robinson, W. H., and Pound, G. M.: Temperature-dependent x-ray small-angle scattering from melt-crystallized polyethylene, 511
Secor, R. M.: Diffusion coefficients in a halocarbon–polybutene system, 323
Senuma, A.: see Kotera, A.
Shatkay, A., and Michaeli, I.: Comparison of osmotic pressures from emf measurements, obtained according to cell-model considerations and exact Gibbs-Duhem integrations, 1061
——, and Michaeli, I.: Determination of osmotic coefficients in polyelectrolyte solutions by potentiometric measurements during phase separation, 1055
Simha, R., and Utracki, L.: Corresponding state relations for the Newtonian viscosity of polymer solutions. II. Further systems and concentrated solutions, 853
Sohma, J.: see Nara, S.
Šolc, D.: see Bohdanecký, M.
Stannett, V.: see Peterlin, A.
Stauffer, J. C.: see Chiang, R.
Stein, R. S.: see Takeuchi, A.
——: see Utsuo, A.
——: see Yang, R.
Stewart, C. W., and von Frankenberg, C. A.: Application of significant structures theory to amorphous polyethylene, 623
Stockmayer, W. H.: see Baysal, B. M.
Sugai, S.: see Makino, S.
Sugimoto, T.: see Matsuzaki, K.
Swenson, H. A.: see Juers, D. H.
Tadokoro, H.: see Uchida, T.
Takeuchi, A., and Stein, R. S.: Time–temperature superposition of the dynamic birefringence of polyethylene, 1079
——: see Okajima, S.
Temkin, A. Ya.: Radiation-induced catalytic polymerization. I. Theory, 211

Teramoto, A., Hiratsuka, S., and Nishijima, Y.: Studies of micro-Brownian motion of a polymer chain by the fluorescence polarization method. II. Segmental motions in concentrated polymer solutions, 37

——: see Nishijima, Y.

Tung, L. H.: Recording microdilatometer for the measurement of polymer crystallization rates, 391

Uchida, T., and Tadokoro, H.: Structural studies of polyethers. IV. Structure analysis of the Polyoxymethylene molecule by three-dimensional Fourier syntheses, 63

Ueda, S.: see Kataoka, T.

Utracki, L.: see Simha, R.

Utsuo, A., and Stein, R. S.: Some optical and mechanical properties of poly(vinyl chloride), 583

Vavra, J., Lapcik, J., and Sabadoš, J.: Light scattering from PVC solutions, 1305

VerStrate, G., and von Frankenberg, C.: Light scattering by nongaussian macromolecules, 1313

Vickroy, V. V., Jr.: see Gent, A. N.

Vitagliano, V.: see Costantino, L.

Wada, Y.: see Hayakawa, R.

Waldman, M. H.: see Schreiber, H. P.

Wales, J. L., and Janeschitz-Kriegl, H.: Apparatus for the measurement of the flow birefringence of polymer melts, 781

Wallach, M. L.: Aromatic poly(amic acids): fundamental structural studies, 653

Warfield, R. W., and Petree, M. C.: Thermodynamic properties of polybutene-1 and Butene-1, 791

Weill, G., and Hermann, G.: NMR spectrum of isotactic poly-2-vinylpyridine, 1293

Wild, L., and Guliana, R.: Gel permeation chromatography of polyethylene: Effect of long-chain branching, 1087

Williams, A. D., and Flory, P. J.: Configurational statistics of poly(ethylene terephthalate) chains, 417

——: see Flory, P. J.

Williams, J. L.: see Peterlin, A.

Williamson, G. R.: Anomalies in ebulliometric measurements with polyethylene, 394

Witenhafer, D. E.: see Koenig, J. L.

Woodward, A. E.: see Morrow, D. R.

Wunderlich, B., and Cormier, C. M.: Heat of fusion of polyethylene, 987

Yamamoto, M.: see Nishijima, Y.

Yang, R., and Stein, R. S.: Deformation of polybutene-1 spherulites, 939

Zwolinski, B. J.: see Joshi, R. M.

SUBJECT INDEX, VOLUME 5

Acetal polymers, solubility and diffusion of water in, 671
Adhesion, of high polymers, wettability of elastomers, 1103
polymer, influence of diffusion, adsorption, and physical state on, 751
Adsorption of iodine from aqueous solutions by samples of tire yarn from regenerated cellulose, 263
Amorphous and crystalline phases, reduced variable analysis in terms of, 195
Amorphous polyethylene, application of significant structures theory to, 623
elastic behavior, birefringence, and swelling of, 47
Amorphous polystyrene with different thermal histories, energy contents of, 743
Anisotropy of mechanical loss tangent of drawn polyacrylonitrile film, 1317
Annealing and melting of poly-4-methyl-pentene-1- single crystals, 493
Anomalies, experimental, and conformational theory of polymers, 455
Aqueous solutions, adsorption of iodine from, by samples of tire yarn from regenerated cellulose, 263
polyelectrolyte behavior and conformation of poly-L-methionine *S*-methylsulfonium salts in, 1013
Aromatic poly(amic acids), 653
Association of polyacrylonitrile prepared by low-temperature solution polymerization with an organometallic catalyst, 101
Atactic polystyrene, diffusion of methyl ethyl ketone in, above the critical concentration, 1189
Beads, swelling crosslinked polymer, concentration gradients in, 799
Binding of counterions by poly(methacrylic acid), influence of stereoregularity on, 771
Birefringence, dynamic, of polyethylene, time–temperature superposition of, 1079
flow, of polymer melts, apparatus for measurement of, 781
strain, of poly(vinyl alcohol) gels, 795
streaming, of polymer solutions, influence of the intermolecular hydrodynamic interaction on the viscosity and, 685
time-dependent, for low-density polyethylene, time–temperature superposition of, 1067
Birefringence dispersion in oriented polystyrene, 817
Birefringence and swelling of amorphous polyethylene networks, 47
Branched polyethylene, gel permeation chromatography of, 333
Branched polymers, polydisperse, intrinsic viscosity of, 431
Branching, long-chain, effect of, 1087
Bulk polymers, microstructure of, in ultrathin sections, 1235
Butene-1 and polybutene-1, thermodynamic properties of, 791
Butyl rubbers, effect of temperature on ozone cracking of, 157
Calibration of gel permeation chromatographic columns for measuring molecular size of poly(vinyl chloride) in tetrahydrofuran, 547
Calibration plot and molecular size separability, shape of, 569
Calorimeter, isothermal, for studies of polymer solution processes, 555
Caractérisation des polymères réticulés sous tension, 1029
Carbon black reinforcement in preswollen rubbers, 1177
Catalytic polymerization, radiation-induced, 211
Cell-model considerations and exact Gibbs-Duhem integrations, osmotic pressures from emf measurements obtained according to, 1061
Cellulose nitrate in diethyl phthalate, dynamic mechanical properties of a gel of, 195
Chromatography, gel permeation, 569

Concentrated solutions, 853
dependence of viscosity of, upon molecular weight and concentration of, 899
segmental motions in, 37
Concentration dependence of time lag for diffusion, 1300
Concentration gradients in swelling crosslinked polymer beads, 799
Concentration and molecular weight, dependence of viscosity of concentrated polymer solutions upon, 899
Configurational enthalpy of polystyrene, 705
Configurational statistics, of polyamide chains, 399
of poly(ethylene terephthalate) chains, 417
Configuration and hydrodynamic properties of fully acetylated salep glucomannan, 361
Conformational theory of polymers, experimental anomalies and, 455
Conformation and polyelectrolyte behavior of poly-L-methionine *S*-methylsulfonium salts in aqueous solution, 1013
Corresponding state relations for the Newtonian viscosity of polymer solutions, 853
Counterions, binding of, by poly(methacrylic acid), influence of stereoregularity on, 771
Critical concentration, diffusion of methyl ethyl ketone in atactic polystyrene above, 1189
Crosslinked polymer beads, swelling, concentration gradients in, 799
Crosslinked poly(vinyl alcohol) gels, elastic properties of, 663
Crystal genealogy, polymer, concise, 225
Crystalline phases, reduced variable analysis in terms of, 195
Crystallinity, effect of, on the infrared absorption spectra of linear polyethylene, 239
predictability of the high-frequency elastic modulus of semicrystalline polymers as function of, 83
Crystallites in highly stretched polyethylene, disorientation of, 535
Crystallization kinetics of *trans*-1,4-polyisoprene, 377
Crystallization of poly(tetramethyl-*p*-silphenylene)siloxane (TMPS) polymers, 89
Crystals, lamellar, dilute solution-grown, 597
polypropylene, morphology of, 587
Decay reactions, relation of, to molecular motion, 929
Déformation, plastique des hauts polymères vitreux soumis à un système de contraintes quelconque, 1145
of polybutene-1 spherulites, 939
spherulite, taking into account changes in volume, models of, 711
Degradation of poly(ethylene oxide) by high-speed stirring, 125
Degree of crystallinity, effect of, on the infrared absorption spectra of linear polyethylene, 239
Depolarized light and differential thermal analyses of polyolefin transitions, 113
Dichroic orientation factors, optical, for relating optical anisotropy of bulk polymer to orientation of structural units, 479
Dielectric relaxation in the paracrystalline phase in polyacrylonitrile, 165
Diethyl phthalate, dynamic mechanical properties of a gel of cellulose nitrate in, 195
Differential thermal analyses of polyolefin transitions, depolarized light and, 113
Diffusion, adsorption, and physical state on polymer adhesion, influence of, 751
in glassy polymers, 1189
of methyl ethyl ketone in atactic polystyrene above the critical concentration, 1189
and solubility of water in acetal polymers, 671
time lag for, concentration dependence of, 1300
Diffusion coefficients in a halocarbon–polybutene system, 323
Diffusion theory of the post-irradiation oxidation of polyethylene, 639
Dilute solution-grown lamellar crystals, 597
Dilute solution studies on a polycarbonate in good and poor solvents, 1

Disorientation of crystallites in highly stretched polyethylene, 535
Drawn and undrawn polyethylene, sorption of organic vapors into, 957
Dynamic birefringence of polyethylene, time–temperature superposition of, 1079
Dynamic mechanical properties, of aromatic, aliphatic, and partially fluorinated epoxy resins, 761
of a gel of cellulose nitrate in diethyl phthalate, 195
Ebulliometric measurements with polyethylene, anomalies in, 394
Elastic behavior, birefringence, and swelling of amorphous polyethylene networks, 47
Elasticity and melt strength, measurements of, 1249
Elastic properties of crosslinked poly(vinyl alcohol) gels, 663
Elastic turbulence and viscosity, entanglements in, 1261
Elastomers, polyurethane, network behavior of, 839
wettability of, 1103
Elevated temperature, ultracentrifugal equilibrium measurements of high polymer solutions at, 277
Emf measurements, osmotic pressures from, obtained according to cell-model considerations and exact Gibbs-Duhem integrations, 1061
Energy contents of amorphous polystyrene with different thermal histories, 743
Entanglements in viscosity and elastic turbulence, 1261
Enthalpy, configurational, of polystyrene, 705
Epoxy resins, aromatic, aliphatic, and partially fluorinated, dynamic mechanical properties of, 761
Error analysis, 425
Fibers, textile, viscoelasticity of, at finite strains, 1119
Film, polyacrylonitrile, drawn, anisotropy of mechanical loss tangent of, 1317
Finite internal viscosity, frequency dependence of intrinsic viscosity of macromolecules with, 179
Finite strains, viscoelasticity of textile fibers at, 1119
Flow birefringence of polymer melts, apparatus for the measurement of, 781
Fluorescence polarization, studies of micro-Brownian motion of a polymer chain by, 23, 37
Fluorescent conjugates of polyacrylamide, 23
Fold-surface problem in polyethylene single crystals, investigation of, with nitric acid oxidation technique, 991
Fourier syntheses, three dimensional, structure analysis of polyoxymethylene molecule by, 63
Fractionation efficiency, polymer, theory of, 1221
Free radicals, configurations of, in irradiated polypropylene, and relation of their decay reactions to molecular motion, 929
Frequency dependence of intrinsic viscosity of macromolecules with finite internal viscosity, 179
Gel permeation chromatographic columns for measuring the molecular size of poly(vinyl chloride) in tetrahydrofuran, calibration of, 547
Gel permeation chromatography, 569
of branched polyethylene, 333
of polyethylene, effect of long-chain branching, 1087
Gels, of cellulose nitrate in diethyl phthalate, dynamic mechanical properties of, 195
crosslinked poly(vinyl alcohol), elastic properties of, 663
ionotropic, low-angle light scattering of, 1043
poly(vinyl alcohol), strain birefringence of, 795
Gel systems, thermally reversible synthetic, 915
Gibbs-Duhem integrations, exact, and cell-model considerations, osmotic pressures from emf measurements obtained according to, 1061
Glassy polymers, diffusion in, 1189
Graft copolymers, in solvent mixtures, intrinsic viscosity of homopolymers and, 230
viscosity of solutions of, 891
Halocarbon–polybutene system, diffusion coefficients in, 323
Heat of fusion of polyethylene, 987

High-frequency elastic modulus of semicrystalline polymers as function of crystallinity, predictability of, 83
High-speed stirring, degradation of poly(ethylene oxide) by, 125
Homopolymers and graft copolymers in solvent mixtures, intrinsic viscosity of, 230
Hydrodynamic interactions, intermolecular, influence of, on the viscosity and streaming birefringence of polymer solutions, 685
Hydrodynamic properties of fully acetylated salep glucomannan, configuration and, 361
Infrared absorption spectra of linear polyethylene, effect of morphology and degree of crystallinity on, 239
Infrared technique for measurement of structural changes during the orientation process in polymers, 301
Intermolecular hydrodynamic interactions, influence of, on the viscosity and streaming birefringence of polymer solutions, 685
Intrinsic viscosity, of homopolymers and graft copolymers in solvent mixtures, 230
of macromolecules with finite internal viscosity, frequency dependence of, 179
of polydisperse branched polymers, 431
Iodine, adsorption of, from aqueous solutions by samples of tire yarn from regenerated cellulose, 263
Ionotropic gels, low-angle light scattering of, 1043
Irradiated polypropylene, configurations of free radicals in, and relation of their decay reactions to molecular motion, 929
Isotactic poly-2-vinylpyridine, NMR spectrum of, 1293
Isothermal calorimeter for studies of polymer solution processes, 555
Lamellar crystals, dilute solution-grown, 597
Light scattering, low-angle, of ionotropic gels, 1043
by nongaussian macromolecules, 1313
from PVC solutions, 1305
Linear polyethylene, effect of morphology and degree of crystallinity on the infrared absorption spectra of, 239
Liquid–liquid phase equilibrium, effect of polydispersity on, 315
Long-chain molecules, depolymerization of, use of random parameter in theory of, 633
Low-angle light scattering of ionotropic gels, 1043
Low-density polyethylene, time–temperature superposition of time-dependent birefringence for, 1067
Low-temperature solution polymerization with an organometallic catalyst, association of polyacrylonitrile prepared by, 101
Macromolecules with finite internal viscosity, frequency dependence of intrinsic viscosity of, 179
Measurement of structural changes during orientation process in polymers, infrared technique for, 301
Mechanical loss tangent of drawn polyacrylonitrile film, anisotropy of, 1317
Mechanical and optical properties of poly(vinyl chloride), 583
Mechanical properties, dynamic, of aromatic, aliphatic, and partially fluorinated epoxy resins, 761
Mechanical secondary relaxation effects in polysulfone, 1296
Mechanical structures in polymer melts, 1249, 1261
Melt-crystallized polyethylene, temperature-dependent x-ray small-angle scattering from, 511
Melting and annealing of poly-4-methylpentene-1 single crystals, 493
Melting temperature of *trans*-polyoctenamer, 1283
Melts, polymer, apparatus for measurement of flow birefringence of, 781
polymer, mechanical structures in, 1249, 1261
Melt strength and elasticity, measurements of, 1249
Methyl ethyl ketone, diffusion of, in atactic polystyrene above the critical concentration, 1189
Micro-Brownian motion of a polymer chain by fluorescence polarization, 23, 37
Microstrain investigation of polyethylene, 143
Microstructure of bulk polymers in ultrathin sections, 1235

Models of spherulite deformation taking into account changes in volume, 711
Molecular dimensions of polydipropylsiloxamer, 829
Molecular motion, relation of decay reactions to, 929
Molecular size of poly(vinyl chloride) in tetrahydrofuran, calibration of gel permeation chromatographic columns for measuring, 547
Molecular size separability, shape of the calibration plot and, 569
Molecular weight and concentration, dependence of viscosity of concentrated polymer solutions upon, 899
Morphology, and degree of crystallinity, effect of, on the infrared absorption spectra of linear polyethylene, 239
of polypropylene crystals, 597
Network behavior of polyurethane elastomers, 839
Network topology, 663
Newtonian viscosity of polymer solutions, corresponding state relations for, 853
Nitric acid oxidation technique, investigation of fold-surface problem in polyethylene single crystals with, 991
NMR of polymer solutions, polyethylene, 1209
poly(methyl methacrylate), 1199
NMR relaxations, solvent, selective polymeric effects on, 697
NMR spectra, of isotactic poly-2-vinylpyridine, 1293
of poly-2-vinylpyridine, 1320
wideline, of polyacrylonitrile, 271
Nongaussian macromolecules, light scattering by, 1313
Optical anisotropy of bulk polymer, optical dichroic orientation factors for relating to orientation of structural units, 479
Optical dichroic orientation factors for relating optical anisotropy of bulk polymer to orientation of structural units, 479
Optical and mechanical properties of poly(vinyl chloride), 583
Organic vapors, sorption of, into drawn and undrawn polyethylene, 957
Organometallic catalyst, association of polyacrylonitrile prepared by low-temperature solution polymerization with, 101
Orientation factors, optical dichroic, for relatidg optical anisotropy of bulk polymer to orientation of structural units, 479
Orientation process in polymers, infrared technique for measurement of structural changes during, 301
Orientation of structural units, optical dichroic orientation factors for relating optical anisotropy of bulk polymer to, 479
Oriented polystyrene, birefringence dispersion in, 817
Osmotic coefficients in polyelectrolyte solutions by potentiometric measurements during phase separation, 1055
Osmotic pressures from emf measurements obtained according to cell-model considerations and exact Gibbs-Duhem integrations, 1061
Oxidation, post-irradiation, of polyethylene, diffusion theory of, 639
Oxidation technique, nitric acid, investigation of fold-surface problem in polyethylene single crystals with, 991
Ozone cracking of butyl rubbers, effect of temperature on, 157
Paracrystalline phase in polyacrylonitrile, dielectric relaxation in, 165
Pentamer–polydimethylsiloxane systems, 973
Phase separation, potentiometric measurements during, osmotic coefficients in polyelectrolyte solutions by, 1055
Polyacrylamide, fluorescent conjugates of, 23
Polyacrylonitrile, dielectric relaxation in the paracrystalline phase in, 165
prepared by low-temperature solution polymerization with an organometallic catalyst, association of, 101
wideline NMR studies of, 271
Polyacrylonitrile film, drawn, anisotropy of mechanical loss tangent of, 1317
Poly(amic acids), aromatic, 653
Polyamide chains, configurational statistics of, 399
Polybutene-1 and butene-1, thermodynamic properties of, 791
Polybutene-1 spherulites, deformation of, 939
Polycarbonate in good and poor solvents, dilute solution studies on, 1

Polydimethylsiloxane–pentamer systems, 973
Polydipropylsiloxamer, molecular dimensions of, 829
Polydisperse branched polymers, intrinsic viscosity of, 431
Polydispersity, effect of, on liquid–liquid phase equilibrium, 315
Polyelectrolyte behavior and conformation of poly-L-methionine *S*-methylsulfonium salts in aqueous solution, 1013
Polyelectrolyte solutions, osmotic coefficients in, by potentiometric measurements during phase separation, 1055
Polyethers, structural studies of, 63
Polyethylene, amorphous, application of significant structures theory to, 623
anomalies in ebulliometric measurements with, 394
diffusion theory of post-irradiation oxidation of, 639
drawn and undrawn, sorption of organic vapors into, 957
gel permeation chromatography of, effect of long-chain branching, 1087
heat of fusion of, 987
highly stretched, disorientation of crystallites in, 535
low-density, time–temperature superposition of time-dependent birefringence for, 1067
melt-crystallized, temperature-dependent x-ray small-angle scattering from, 511
microstrain investigation of, 143
NMR of solutions of, 1209
time–temperature superposition of dynamic birefringence of, 1079
Poly(ethylene oxide), degradation of, by high-speed stirring, 125
Polyethylene single crystals, fold-surface problem in, investigation of, with nitric acid oxidation technique, 991
Poly(ethylene terephthalate) chains, configurational statistics of, 417
trans-1,4-Polyisoprene, crystallization kinetics of, 377
Poly(methacrylic acid), influence of stereoregularity on binding of counterions by, 771
Poly-L-methionine *S*-methylsulfonium salts in aqueous solution, polyelectrolyte behavior and conformation of, 1013
Poly(methyl methacrylate), NMR of solutions of, 1199
Poly(methyl methacrylate) solutions in Θ-solvents, negative thixotropy of, 1309
Poly-4-methylpentene-1 single crystals, annealing and melting of, 493
Polymorphism in polypentene-1, 1323
trans-Polyoctenamer, melting temperature of, 1283
Polyolefin transitions, depolarized light and differential thermal analyses of, 113
Polyoxymethylene molecule, three-dimensional Fourier syntheses of, 63
Polypentene-1, polymorphism in, 1323
Polypropylene, irradiated, configurations of free radicals in, and relation of their decay reactions to molecular motion, 929
Polypropylene crystals, morphology of, 597
Polypropylene lamellae delineated by staining, transmission electron microscopy of, 471
Polystyrene, amorphous, with different thermal histories, energy contents of, 743
atactic, diffusion of methyl ethyl ketone in, above the critical concentration, 1189
configurational enthalpy of, 705
oriented, birefringence dispersion in, 817
viscoelastic properties of, 875
Polysulfone, mechanical secondary relaxation effects in, 1296
Poly(tetramethyl-*p*-silphenylene)-siloxane (TMS) polymers, crystallization of, 89
Polyurethane elastomers, network behavior of, 839
Poly(vinyl alcohol) gels, crosslinked, elastic properties of, 663
strain birefringence of, 795
Poly(vinyl chloride), optical and mechanical properties of, 583
radical-initiated, structure and solution properties of, 343
in tetrahydrofuran, calibration of gel permeation chromatographic columns for measuring molecular size of, 547

Poly(vinyl chloride) solutions, light scattering from, 1305
Poly-2-vinylpyridine, isotactic, NMR spectrum of, 1293
NMR spectra of, 1320
Post-irradiation oxidation of polyethylene, diffusion theory of, 639
Potentiometric measurements during phase separation, osmotic coefficients in polyelectrolyte solutions by, 1055
Predictability of high-frequency elastic modulus of semicrystalline polymers as function of crystallinity, 83
Preswollen rubbers, carbon black reinforcement in, 1177
Radiation-induced catalytic polymerization, 211
Radical-initiated poly(vinyl chloride), structure and solution properties of, 343
Random parameter in theory of depolymerization of long-chain molecules, use of, 633
Recording microdilatometer for measurement of polymer crystallization rates, 391
Reduced variable analysis in terms of amorphous and crystalline phases, 195
Regenerated cellulose, adsorption of iodine from aqueous solutions by samples of tire yarn from, 263
Relaxation effects, mechanical secondary, in polysulfone, 1296
Relaxation spectra and polymer melts from relaxation and steady-state flow data, 289
Relaxation and steady-state flow data, relaxation spectra and polymer melts from, 289
Rubbers, preswollen, carbon black reinforcement in, 1177
Salep glucomannan, fully acetylated, configuration and hydrodynamic properties of, 361
Salts, poly-L-methionine *S*-methylsulfonium, in aqueous solution, polyelectrolyte behavior and conformation of, 1013
Secondary relaxation effects, mechanical, in polysulfone, 1296
Segmental motions in concentrated polymer solutions, 37
Selective polymeric effects on solvent NMR relaxations, 697
Significant structures theory, application of, to amorphous polyethylene, 623
Single crystals, polyethylene, fold-surface problem in, investigation of, with nitric acid oxidation technique, 991
Small-angle scattering, temperature dependent x-ray, from melt-crystallized polyethylene, 511
Solubility and diffusion of water in acetal polymers, 671
Solution processes, polymer, isothermal calorimeter for studies of, 555
Solution properties, correlation of, 343
of radical-initiated poly(vinyl chloride), structure and, 343
Solutions, concentrated polymer, dependence of viscosity of, upon molecular weight and concentration of, 899
of graft copolymers, viscosity of, 891
polyelectrolyte, osmotic coefficients in, by potentiometric measurements during phase separation, 1055
polymer, corresponding state relations for Newtonian viscosity of, 853
polymer, influence of intermolecular hydrodynamic interaction on the viscosity and streaming birefringence of, 685
Θ-Solutions, negative thixotropy of poly(methyl methacrylate) solutions in, 1309
Solvent mixtures, intrinsic viscosity of homopolymers and graft copolymers in, 230
Solvent NMR relaxations, selective polymeric effects on, 697
Sorption of organic vapors into drawn and undrawn polyethylene, 957
Spherulite deformation taking into account changes in volume, models of, 711
Spherulites, polybutene-1, deformation of, 939
Staining, transmission electron microscopy of polypropylene lamellae delineated by, 471
Statistics of substitution polymers, 1157
Steady-state flow data, relaxation spectra and polymer melts from relaxation and, 289
Stereoregularity, influence of, on binding of counterions by poly(methacrylic acid), 771

Strain birefringence of poly(vinyl alcohol) gels, 795
Strains, finite, viscoelasticity of textile fibers at, 1119
Streaming birefringence of polymer solutions, influence of intermolecular hydrodynamic interaction on the viscosity and, 685
Structural changes during orientation process in polymers, infrared technique for measurement of, 301
Structural units, optical dichroic orientation factors for relating optical anisotropy of bulk polymer to orientation of, 479
Structure and solution properties of radical-initiated poly(vinyl chloride), 343
Substitution polymers, statistics of, 1157
Swelling crosslinked polymer beads, concentration gradients in, 799
Synthetic thermally reversible gel systems, 915
Système de contraintes quelconque, déformation plastique des hauts polymères vitreux soumis à, 1145
Temperature-dependent x-ray small-angle scattering from melt-crystallized polyethylene, 511
Tension, caractérisation des polymères réticulés sous, 1029
Textile fibers, viscoelasticity of, at finite strains, 1119
Theory of depolymerization of long-chain molecules, use of random parameter in, 633
Thermal histories, energy contents of amorphous polystyrene with different, 743
Thermally reversible gel systems, synthetic, 915
Thermodynamic properties of polybutene-1 and butene-1, 791
Thixotropy, negative, of poly(methyl methacrylate) solutions in Θ-solvents, 1309
Time-dependent birefringence for low-density polyethylene, time–temperature superposition of, 1067
Time lag for diffusion, concentration dependence of, 1300
Time–temperature superposition, of dynamic birefringence of polyethylene, 1079
of time-dependent birefringence for low-density polyethylene, 1067
Tire yarn from regenerated cellulose, adsorption of iodine from aqueous solutions by samples of, 263
Topology, network, 663
Transient analysis of a vibrating reed, 425
Transmission electron microscopy of polypropylene lamellae delineated by staining, 471
Turbulence, elastic, and viscosity, entanglements in, 1261
Ultracentrifugal equilibrium measurement of high polymer solutions at elevated temperatures, 277
Ultrathin sections, microstructure of bulk polymers in, 1235
Undrawn and drawn polyethylene, sorption of organic vapors into, 957
Unperturbed dimensions of copolymer molecules, 461
Vibrating reed, transient analysis of, 425
Viscoelasticity of textile fibers at finite strains, 1119
Viscoelastic properties of polystyrene, 875
Viscosity, of concentrated polymer solutions, dependence of, upon molecular weight and concentration, 899
and elastic turbulence, entanglements in, 1261
Newtonian, of polymer solutions, corresponding state relations for, 853
of polydimethylsiloxane–pentamer systems, 973
of solutions of graft copolymers, 891
and streaming birefringence of polymer solutions, influence of the intermolecular hydrodynamic interaction on, 685
Water in acetal polymers, solubility and diffusion of, 671
Wettability of elastomers, 1103
Wideline NMR studies of polyacrylonitrile, 271
X-ray small-angle scattering, temperature dependent, from melt-crystallized polyethylene, 511

Journal of Polymer Science

Part A-2: Polymer Physics

Volume 5, 1967

Board of Editors: H. MARK · C. G. OVERBERGER · T. G FOX

Advisory Editors: R. M. FUOSS · J. J. HERMANS · H. W. MELVILLE · G. SMETS

Editor: T. G FOX **Assistant Editors:** E. F. CASASSA · H. MARKOVITZ

Advisory Board:

G. ALLEN, *Manchester*
F. R. ANDERSON, *Durham, N. C.*
W. O. BAKER, *Murray Hill, N. J.*
H. BENOIT, *Strasbourg*
F. A. BOVEY, *Murray Hill, N. J.*
A. M. BUECHE, *Schenectady, N. Y.*
R. H. COLE, *Providence, R. I.*
H. EISENBERG, *Rehovoth*
J. D. FERRY, *Madison, Wis.*
E. W. FISCHER, *Mainz*
P. J. FLORY, *Stanford, Calif.*
H. FUJITA, *Osaka*
G. GEE, *Manchester*
A. N. GENT, *Akron, Ohio*
W. E. GIBBS, *Dayton, Ohio*
S. GRATCH, *Dearborn, Mich.*
C. A. J. HOEVE, *Washington, D. C.*
J. D. HOFFMAN, *Washington, D. C.*
R. E. HUGHES, *Ithaca, N. Y.*
H. D. KEITH, *Murray Hill, N. J.*
A. KELLER, *Bristol*
A. J. KOVACS, *Strasbourg*
G. KRAUS, *Bartlesville, Okla.*
W. R. KRIGBAUM, *Durham, N. C.*
S. KRIMM, *Ann Arbor, Mich.*
M. KURATA, *Kyoto*
R. F. LANDEL, *Pasadena, Calif.*
P. H. LINDENMEYER, *Durham, N. C.*
L. MANDELKERN, *Tallahassee, Fla.*
B. MAXWELL, *Princeton, N. J.*
L. NIELSEN, *St. Louis, Mo.*
A. PETERLIN, *Durham, N. C.*
R. S. PORTER, *Amherst, Mass.*
F. PRICE, *Schenectady, N. Y.*
G. V. SCHULZ, *Mainz*
A. R. SHULTZ, *Schenectady, N. Y.*
R. SIMHA, *Los Angeles, Calif.*
W. P. SLICHTER, *Murray Hill, N. J.*
T. L. SMITH, *Menlo Park, Calif.*
W. O. STATTON, *Wilmington, Del.*
R. S. STEIN, *Amherst, Mass.*
W. H. STOCKMAYER, *Hanover, N. H.*
M. TAKAYANAGI, *Fukuoka*
A. V. TOBOLSKY, *Princeton, N. J.*
K. WOLF, *Ludwigshafen*
B. WUNDERLICH, *Troy, N. Y.*

INTERSCIENCE PUBLISHERS

Copyright © 1967, by John Wiley & Sons, Inc.

CONTENTS

Vol. 5, Issue Nos. 1–6

Journal of Polymer Science
Part A-2: Polymer Physics

ISSUE NO. 1, JANUARY

Editorial i

G. C. BERRY, H. NOMURA, and K. G. MAYHAN: Dilute Solution Studies on a Polycarbonate in Good and Poor Solvents 1

YASUNORI NISHIJIMA, AKIO TERAMOTO, MASHIDE YAMAMOTO, and SHOZABURO HIRATSUKA: Studies of Micro-Brownian Motion of a Polymer Chain by the Fluorescence Polarization Method. I. Fluorescent Conjugates of Polyacrylamide 23

AKIO TERAMOTO, SHOZABURO HIRATSUKA, and YASUNORI NISHIJIMA: Studies of Micro-Brownian Motion of a Polymer Chain by the Fluorescence Polarization Method. II. Segmental Motions in Concentrated Polymer Solutions 37

A. N. GENT and V. V. VICKROY, JR.: Elastic Behavior, Birefringence, and Swelling of Amorphous Polyethylene Networks 47

TOSHIO UCHIDA and HIROYUKI TADOKORO: Structural Studies of Polyethers. IV. Structure Analysis of the Polyoxymethylene Molecule by Three-Dimensional Fourier Syntheses 63

A. BONDI: On the Predictability of the High-Frequency Elastic Modulus of Semicrystalline Polymers as Function of Crystallinity 83

J. H. MAGILL: Crystallization of Poly(tetramethyl-*p*-silphenylene)-siloxane (TMPS) Polymers. Part II 89

R. CHIANG and J. C. STAUFFER: Association of Polyacrylonitrile Prepared by Low-Temperature, Solution Polymerization with an Organometallic Catalyst 101

EDWARD M. BARRALL, II, and EMILIO J. GALLEGOS: Depolarized Light and Differential Thermal Analyses of Some Polyolefin Transitions 113

YUJI MINOURA, TANEKAZU KASUYA, SHINJI KAWAMURA, and AKIHIKO NAKANO: Degradation of Poly(ethylene Oxide) by High-Speed Stirring 125

STEPHEN RABINOWITZ and NORMAN BROWN: Microstrain Investigation of Polyethylene 143

478423

A. N. Gent and H. Hirakawa: Effect of Temperature on the Ozone Cracking of Butyl Rubbers 157
Reinosuke Hayakawa, Toshio Nishi, Kunio Arisawa, and Yasaku Wada: Dielectric Relaxation in the Paracrystalline Phase in Polyacrylonitrile 165
A. Peterlin: Frequency Dependence of Intrinsic Viscosity of Macromolecules with Finite Internal Viscosity 179
Kazuhiko Ninomiya and John D. Ferry: Dynamic Mechanical Properties of a Gel of Cellulose Nitrate in Diethyl Phthalate: Reduced Variable Analysis in Terms of Amorphous and Crystalline Phases 195
A. Ya. Temkin: Radiation-Induced Catalytic Polymerization. I. Theory 211

Notes

H. B. van der Heijde: A Concise Polymer Crystal Genealogy ... 225
Anastasios Dondos and Donald Patterson: Intrinsic Viscosity of Homopolymers and Graft Copolymers by Solvent Mixtures ... 230

Book Review

Macromolecules in Solution (High Polymers, Vol. XXI), Herbert Morawetz. Reviewed by Walter H. Stockmayer 235
Information for Contributors 237

Issue No. 2, March

T. Okada and L. Mandelkern: Effect of Morphology and Degree of Crystallinity on the Infrared Absorption Spectra of Linear Polyethylene 239
H. L. Doppert: Adsorption of Iodine from Aqueous Solutions by Samples of Tire Yarn from Regenerated Cellulose 263
P. E. McMahon: Wideline NMR Studies of Polyacrylonitrile 271
Akira Kotera, Naomichi Iso, Akitaka Senuma, and Takeshi Hamada: Ultracentrifugal Equilibrium Measurement of High Polymer Solutions at Elevated Temperatures 277
Giuseppe Ajroldi, Carmine Garbuglio, and Giovanni Pezzin: Relaxation Spectra and Polymer Melts from Relaxation and Steady-State Flow Data 289
J. L. Koenig, S. W. Cornell, and D. E. Witenhafer: Infrared Technique for the Measurement of Structural Changes During the Orientation Process in Polymers 301
B. M. Baysal and W. H. Stockmayer: Effect of Polydispersity on Liquid–Liquid Phase Equilibrium 315
R. M. Secor: Diffusion Coefficients in a Halocarbon–Polybutene System 323

R. Salovey and M. Y. Hellman: Gel Permeation Chromatography of Branched Polyethylene 333
M. Bohdanecký, K. Šolc, P. Kratochvíl, M. Kolínský, M. Ryska, and D. Lím: Structure and Solution Properties of Radical-Initiated Poly(vinyl Chloride). II. Correlation of Solution Properties 343
David H. Juers, Harold A. Swenson, and Sheldon F. Kurath: Configuration and Hydrodynamic Properties of Fully Acetylated Salep Glucomannan 361
E. Fischer and J. F. Henderson: Study of Crystallization Kinetics of *trans*-1,4-Polyisoprene 377

Notes

L. H. Tung: Recording Microdilatometer for the Measurement of Polymer Crystallization Rates 391
G. R. Williamson: Anomalies in Ebulliometric Measurements with Polyethylene 394

Book Review

Physics of Plastics, P. D. Ritchie, Ed. Reviewed by Franklin C. Chang 397

Issue No. 3, May

P. J. Flory and A. D. Williams: Configurational Statistics of Polyamide Chains 399
A. D. Williams and P. J. Flory: Configurational Statistics of Poly(ethylene Terephthalate) Chains 417
R. D. Glauz: Transient Analysis of a Vibrating Reed: Error Analysis 425
William W. Graessley and Henry M. Mittelhauser: Intrinsic Viscosity of Polydisperse Branched Polymers 431
John N. Majerus: Experimental Anomalies and the Conformational Theory of Polymers 455
Th. G. Scholte: Unperturbed Dimensions of Copolymer Molecules 461
Charles W. Hock: Transmission Electron Microscopy of Polypropylene Lamellae Delineated by Staining 471
Shunji Nomura, Hiromichi Kawai, Itzuro Kimura, and Mitzuyasu Kagiyama: General Description of Optical Dichroic Orientation Factors for Relating Optical Anisotropy of Bulk Polymer to Orientation of Structural Units 479
D. R. Morrow, G. C. Richardson, L. Kleinman, and A. E. Woodward: Annealing and Melting of Poly-4-methylpentene-1 Single Crystals 493

J. M. Schultz, W. H. Robinson, and G. M. Pound: Temperature-Dependent X-Ray Small-Angle Scattering from Melt-Crystallized Polyethylene 511
Keizo Miyasaka and Kunio Makishima: Disorientation of Crystallites in Highly Stretched Polyethylenes 535
C. L. Rohn: Calibration of Gel Permeation Chromatographic Columns for Measuring the Molecular Size of Poly(vinyl Chloride) in Tetrahydrofuran 547
H. P. Schreiber and M. H. Waldman: Isothermal Calorimeter for Studies of Polymer Solution Processes 555
H. W. Osterhoudt and L. N. Ray, Jr.: Gel Permeation Chromatography: On the Shape of the Calibration Plot and Molecular Size Separability 569
A. Utsuo and R. S. Stein: Some Optical and Mechanical Properties of Poly(vinyl Chloride) 583
Morio Kojima: Morphology of Polypropylene Crystals. I. Dilute Solution-Grown Lamellar Crystals 597
Morio Kojima: Morphology of Polypropylene Crystals. II. Twinning of Lamellar Crystals 615
Charles W. Stewart and C. A. von Frankenberg: Application of Significant Structures Theory to Amorphous Polyethylene 623
Brian J. Coyne: On the Use of a Random Parameter in the Theory of Depolymerization of Long-Chain Molecules 633

Issue No. 4, July

Georg G. A. Böhm: Diffusion Theory of the Post-Irradiation Oxidation of Polyethylene 639
M. L. Wallach: Aromatic Poly(amic Acids): Fundamental Structural Studies 653
J. F. Jackson and S. J. Gill: Elastic Properties of Crosslinked Poly(vinyl Alcohol) Gels: Network Topology 663
G. F. Hardy: Solubility and Diffusion of Water in Acetal Polymers. 671
P. Munk: Streaming Birefringence. VII. Influence of the Intermolecular Hydrodynamic Interaction on the Viscosity and Streaming Birefringence of Polymer Solutions 685
Kang-Jen Liu: Selective Polymeric Effects on Solvent NMR Relaxations 697
R. M. Joshi, B. J. Zwolinski, J. M. O'Reilly and F. E. Karasz: Configurational Enthalpy of Polystyrene 705
Robert S. Moore: Models of Spherulite Deformation Taking into Account Changes in Volume 711
Umberto Bianchi, Carla Cuniberti, Enrico Pedemonte, and Corrado Rossi: Energy Contents of Amorphous Polystyrene with Different Thermal Histories 743
Lieng-Huang Lee: Adhesion of High Polymers. I. Influence of Diffusion, Adsorption, and Physical State of Polymer Adhesion .. 751

F. R. Dammont and T. K. Kwei: Dynamic Mechanical Properties of Aromatic, Aliphatic, and Partially Fluorinated Epoxy Resins.... 761
L. Costantino, V. Crescenzi, F. Quadrifoglio, and V. Vitagliano: Influence of Stereoregularity on Binding of Counterions by Poly(methacrylic Acid)..... 771
J. L. S. Wales and H. Janeschitz-Kriegl: Apparatus for the Measurement of the Flow Birefringence of Polymer Melts..... 781

Notes

R. W. Warfield and M. C. Petree: Thermodynamic Properties of Polybutene-1 and Butene-1..... 791
J. F. Jackson and S. J. Gill: Strain Birefringence of Poly(vinyl Alcohol) Gels..... 795

Issue No. 5, September

Edward F. Gurnee: Measurement of Concentration Gradients in Swelling Crosslinked Polymer Beads..... 799
Edward F. Gurnee: Birefringence Dispersion in Oriented Polystyrene..... 817
C. L. Lee and F. A. Emerson: Molecular Dimensions of Polydipropylsiloxamer..... 829
D. Puett: Network Behavior of Polyurethane Elastomers..... 839
Robert Simha and Lechoslaw Utracki: Corresponding State Relations for the Newtonian Viscosity of Polymer Solutions. II. Further Systems and Concentrated Solutions..... 853
Güneri Akovali: Viscoelastic Properties of Polystyrene..... 875
S. Połowiński: Investigation of the Viscosity of Solutions of Graft Copolymers..... 891
Shigeharu Onogi, Toshiro Masuda, Nobuyuki Miyanaga, and Yasuo Kimura: Dependence of Viscosity of Concentrated Polymer Solutions upon Molecular Weight and Concentration... 899
Howard C. Haas, Robert D. Moreau, and Norman W. Schuler: Synthetic Thermally Reversible Gel Systems. II..... 915
S. Nara, H. Kashiwabara, and J. Sohma: Configurations of the Free Radicals in Irradiated Polypropylene and the Relation of Their Decay Reactions to the Molecular Motion..... 929
Rena Yang and R. S. Stein: Deformation of Polybutene-1 Spherulites..... 939
A. Peterlin, J. L. Williams, and V. Stannett: Sorption of Organic Vapors into Drawn and Undrawn Polyethylene..... 957
Tadao Kataoka and Shigeyuki Ueda: Viscosity of Polydimethylsiloxane–Pentamer Systems..... 973

Note

BERNHARD WUNDERLICH and C. M. CORMIER: Heat of Fusion of Polyethylene 987

Book Review

An Atomistic Approach to the Nature and Properties of Materials, J. A. Pask, Ed. Reviewed by PAUL G. RASMUSSEN 989

ISSUE NO. 6, NOVEMBER

D. J. BLUNDELL, A. KELLER, and T. M. CONNOR: Investigation of the Fold-Surface Problem in Polyethylene Single Crystals with the Nitric Acid Oxidation Technique 991

SHIO MAKINO and SHINTARO SUGAI: Polyelectrolyte Behavior and Conformation of Poly-L-Methionine *S*-Methylsulfonium Salts in Aqueous Solution 1013

G. EVRARD et C. JOB: Caractérisation des Polymères réticulés sous Tension 1029

FREDERICK A. BETTELHEIM: Low-Angle Light Scattering of Ionotropic Gels 1043

A. SHATKAY and I. MICHAELI: Determination of Osmotic Coefficients in Polyelectrolyte Solutions by Potentiometric Measurements During Phase Separation 1055

ADAM SHATKAY and ISAAC MICHAELI: Comparison of Osmotic Pressures from EMF Measurements, Obtained According to Cell-Model Considerations and Exact Gibbs-Duhem Integrations 1061

SHIGEHARU ONOGI, TADAHIRO ASADA, YOSHIHARU FUKUI, and TAKEO FUJISAWA: Time–Temperature Superposition of Time-Dependent Birefringence for Low-Density Polyethylene 1067

A. TAKEUCHI and R. S. STEIN: Time–Temperature Superposition of the Dynamic Birefringence of Polyethylene 1079

L. WILD and R. GULIANA: Gel Permeation Chromatography of Polyethylene: Effect of Long-Chain Branching 1087

LIENG-HUANG LEE: Adhesion of High Polymers. II. Wettability of Elastomers 1103

I. H. HALL: Viscoelasticity of Textile Fibers at Finite Strains 1119

JEAN-CLAUDE BAUWENS: Déformation plastique des hauts Polymères vitreux soumis à un Système de Contraintes quelconque ... 1145

H. K. FRENSDORFF and O. EKINER: Statistics of Substitution Polymers 1157

G. R. COTTEN: Carbon Black Reinforcement in Preswollen Rubbers. Part II 1177

HISASHI ODANI: Diffusion in Glassy Polymers. IV. Diffusion of Methyl Ethyl Ketone in Atactic Polystyrene Above the Critical Concentration 1189

KANG-JEN LIU: Nuclear Magnetic Resonance Studies of Polymer Solutions. I. Poly(methyl Methacrylates) 1199

KANG-JEN LIU: NMR Studies of Polymer Solutions. II. Polyethylene 1209
MAURICE L. HUGGINS: Theory of Polymer Fractionation Efficiency 1221
E. H. ANDREWS, M. W. BENNETT, and A. MARKHAM: Microstructure of Bulk Polymers as Revealed in Ultrathin Sections 1235
W. F. BUSSE: Mechanical Structures in Polymer Melts. I. Measurements of Melt Strength and Elasticity 1249
W. F. BUSSE: Mechanical Structures in Polymer Melts. II. Roles of Entanglements in Viscosity and Elastic Turbulence 1261
NISSIM CALDERON and MARION C. MORRIS: Melting Temperature of *trans*-Polyoctenamer 1283

Notes

G. WEILL and G. HERMANN: NMR Spectrum of Isotactic Poly-2-vinylpyridine 1293
MARIO BACCAREDDA, ENZO BUTTA, VITTORIO FROSINI, and SILVANO DE PETRIS: Mechanical Secondary Relaxation Effects in Polysulfone 1296
J. A. BARRIE and D. MACHIN: Concentration Dependence of the Time Lag for Diffusion 1300
J. VAVRA, J. LAPČÍK, and J. SABADOŠ: Light Scattering from PVC Solutions 1305
O. QUADRAT and M. BOHDANECKÝ: Negative Thixotropy of Poly(methyl Methacrylate) Solutions in Θ-Solvents 1309
GARY VERSTRATE and CARL VON FRANKENBERG: Light Scattering by Nongaussian Macromolecules 1313
SABURO OKAJIMA and AKIO TAKEUCHI: Anisotropy of the Mechanical Loss Tangent of Drawn Polyacrylonitrile Film 1317
KEI MATSUZAKI and TADAO SUGIMOTO: NMR Spectra of Poly-2-vinylpyridine 1320
I. D. RUBIN: On Polymorphism in Polypentene-1 1323

Book Review

Non-Newtonian Flow and Heat Transfer, A. H. P. Skelland. Reviewed by MICHAEL C. WILLIAMS 1327

Erratum

DEWEY K. CARPENTER: Light Scattering Study of the Molecular Weight Distribution of Polypropylene (article in *J. Polymer Sci. A-2*, **4**, 923, 1966) 1329
Information for Contributors 1331

Author Index 1333

Subject Index 1339